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Responsibility of a School District For Financing a Visual Instruction Program*

ALBERT LINDSAY ROWLAND

BEFORE the financial responsibility of a school district for a visual education program can be discussed, there must be clearly in mind what is meant by a visual education program.

At the risk of repetition, therefore, and with apologies for presenting what may be obvious, there appear to be four kinds of visual material, pictures, representations other than pictures, specimens and excursions.

Pictures:

Photographic prints. Illustrations in books. Descriptive leaflets. Posters. Charts. Graphs. Slides —glass and film. Motion picture films.

Representations:

Sand table models of land and water formations, historical scenes and incidents, community organizations, industrial plants, etc. Relief maps. Machinery models—air planes, printing presses, cotton gin, engines, boats, etc. Dolls. Puppet shows. Dramatic representations. Pageantry.

Specimens:

Raw materials. Manufactured products. Intermediate stages between the two. Weapons. Uniforms. Utensils. Jewelry. Rugs. Furniture. Garments.

Excursions:

To historical sites. To natural phenomena—rivers, water falls, rocks, rock foundations, caves, mountains, etc.—trees, shrubs, flowers, ferns, moss, mushrooms, etc. To observatories for stars, moon, sun, snow, ice, fog, mist, rain, dew. For animals. For birds. For insects. To manufacturing plants. To farms. To distributing centers—stores, wholesale and retail. To cities—service stations, gas, electricity, power, water, telephone, street paving, sewage disposal, fire and police service. To government buildings—courts, legislative sessions, executive offices, etc. To publicity agencies—publishing plants, newspapers, magazines, books.

Many of these visual aids are embodied in text books. The blackboard provides an elastic device for the teachers to manufacture such material. Old and current magazines and newspapers; pictures, drawn or painted by the children, provide additional material. If projection apparatus is available many films and slides are free, costing only the transportation charges. Reproductions of famous paintings may be had for small cost and if carefully preserved by mounting and filing, may be added to year after year until a really fine collection may belong to a school with very weak financial support.

Portraits of famous men and women; reproductions of historical documents and manuscripts; photographs of musical instruments; books, weapons, armor, royal regalia, natural wonders, are available at small cost. In fact, a teacher who is sensitive to the value of such pictures for instructional purposes may, with the help of his pupils, gather an astonishing volume of such material in picture postcard form without any expense whatever.

Every class room, however, should be provided with a filing cabinet, or better yet, a specially constructed closet with drawers of several sizes, to hold, alphabetically arranged, these pictures, large and small, that come to make this valuable collection which must always be the core of the visual education program as it is the most permanent and at the same time the most growing feature of that program.

Similar specimens may be collected and housed with careful classification until a formidable array of valuable material is a prominent part of the class room equipment. True, some of the specimens and often the most valuable will be but loaned and must return periodically to the owner, but they may usually be reborrowed when needed and a valuable home contact is thus made and maintained. People like to lend their treasures of this sort if they know they will be appreciated and cared for.

Many schools are provided with a collection of rocks, beetles, butterflies and other things, all carefully mounted and labeled, but generally collecting dust in some forgotten cabinet. This is a sad commentary upon the succession of teachers who have presided over that class room. Where was their instruction in the value and use of visual aids? Where was their technique in the use of such material? Forgotten, or perhaps, never learned, but with the best of teachers there is the need for enlisting the interest of the pupils by calling for some freshly found material. The labor of producing such specimens will, of itself, earn respect for the existing collection, the visible evidence of some other collector's painstaking efforts in the cause of scientific or historical truth.

A wealth of illustrative material will respond to the diligent search of a pupil whose interest has been aroused and whose assistance has been sought by a wise and inspiring teacher. Hats of a bygone

*Address delivered before the Visual Education Round Table at Pittsburgh, December 30, 1931.

generation, exotic trinkets from a trip abroad, a piece of coal fashioned into an inkstand, a coral ornament, an Indian vase, a Japanese carving, a Swiss music box, a thousand things that money alone could not procure are produced for the asking and give enchantment to the subject of study. Nor is it the children of wealthy parents who provide the richest contributions. The pupils in a poor mill district provided, on one occasion, when the American Indian was the subject of study and discussion, the fullest display of arrowheads, blankets, headdresses, tomahawks, beads, and the like, of any of a group of schools engaged in this project. The cost to the school was, of course, nothing.

Representations require a minimum of equipment to be supplied by the school. I recall a second grade class that designed and built an airplane in their class room, made largely from orange crates and cardboard which was big enough for two pupils to ride in, one in the pilot's seat and one in the space for the passenger. They were particularly proud of the glass windshield which one of their members brought to school and which was rigged up in front of the pilot and behind the propellor. Of course, the completed machine had to be painted. In fact the painting did much to establish the illusion of a real airplane. Usually the teacher must buy the paint because school boards have not yet learned that paint, regular house paint, is a proper educational supply. This is also true of carpenter tools and work benches for primary grades. However, in this case, the school district was enlightened and supplied both paint and tools.

Dramatic representations require usually some simple costuming. Often these, like the historical and scientific specimens, may be had by appealing to the children. It is well, however, if each class room can develop a supply of shawls and scarfs, boots and hats, weapons and implements for dramatic purposes. A small expenditure for such things is more than justified by the increased vividness of the lessons taught.

Excursions frequently involve transportation, the cost of which is usually met by the pupils individually. Many school districts, however, own their own bus or busses and these are available for trips between times of the regular transportation schedules. If the excursions are wisely planned and are made an integral part of the course of study, the cost of transportation is a reasonable charge against the school district. We must abandon the idea that the only legitimate expenditures under the head of instructional equipment and supplies are for textbooks, pencils, and paper. Children do not learn by books alone, but by everything they see and do. Books are indispensable but they are poor pale things in comparison with a real flag of the colonial period, a dramatic representation of the signing of the Declaration of Independence, or a trip to Independence Hall.

But I am supposed to be discussing the cost of a visual education program and the financial responsibilities of a school district in this regard.

The average expenditures for current expenses in 1930 for the third class school districts of the Commonwealth of Pennsylvania was $84.75 per pupil in average daily attendance. Including debt service and capital outlay it was $124.45, distributed as follows:

A.	General Control	$ 5.90
B.	Instruction	60.60
C.	Auxiliary Agencies	2.90
D.	Operation	9.10
E.	Maintenance	3.35
F.	Fixed Charges	3.00
G. & H.	Debt. Serv. & Cap. Outlay	39.60
		$124.45

Reduced to percentages of total expenditures, these items appear approximately as follows:

A.	General Control	5%
B.	Instruction	48%
C.	Auxiliary Agencies	2%
D.	Operation	10%
E.	Maintenance	3%
F.	Fixed Charges	2%
G. & H.	Debt. Serv. & Cap. Outlay	30%
		100%

Assuming a school district, whose assessed value of real property is $100,000 for each teacher employed, and whose assessed value is 50% of the real value according to the opinion of the secretary of the school board, and whose school tax is 25 mills, the funds available for school purposes from local taxation without deducting for exonerations or adding the per capita tax is $2500 per teacher. Allowing 45% of the total income for salaries, $1125 becomes the average salary and $1375 remains for other purposes. As approximately 50% is chargeable to the B. item of instruction, 5% is available for instruction costs other than salaries or $125. Judging from my own experience, I would say that of the sum 40%, or $50 per teacher, should be spent for visual aids using this term in its broadest sense. If there are 50 teachers in the system, $2500 should be allocated in the budget for this purpose.

With such a sum a school system would be able to set up a good visual education program, slowly acquiring projection apparatus, slides, specimens, maps, globes, tools, sand tables, dramatic properties, etc., as well as provide the consumable materials such as paper, paint, lumber, modeling material, and also set aside a sum for transportation to points of historic, literary, and scientific interest.

The Encouragement of Music Appreciation Through Visual Aids

ALEXANDER M. HARLEY
LOUIS A. ASTELL

THE TEACHER of academic subjects including music, who employs any objective presentation including pictorial reproduction or graphic representation, is making use of visual aids[1]. The score and baton as well as as the stereopticon slide and film are after all properly designated as visual aids. In terms of music these aids merely contribute to the important sensory capacity of audition. The significance of this last statement is found in the difficulties confronting a violin student, who attempts to master pitch in the absence of a highly developed sense of hearing. When visual aids are properly selected and integrated with the more or less subjective discussions of abstraction[2], classrooms, lecture halls, and orchestra pits take on an added meaning for the student.

An interesting angle in the application of visualization to creative composition in music has been suggested by del Castillo[3] who has predicted that a new form of music might result from the motion picture with its flash-back, rapid movement, and shifting scenes. With the present ascendency of sound productions it seems that adequate opportunities for the development of this theory are at hand.

As visual aids several new devices in the fields of acoustics and music may be expected to yield definite contributions to music appreciation generally. Among these devices are to be found the portable and photographic types of Osiso[4]. Through the use of this instrument evidence has been obtained in support of the hypothesis that for pianos, "every difference of hammer velocity connotes a difference both of intensity and of tone-color." What the Osiso is revealing with sound under direct control and observation, the "rapid record oscillograph"[5] is yielding for picturization of sound in cable and telephonic transmission.

The Strobophotograph camera designed by Professor Milton Metfessel[6] and recently improved by Tiffin and Roger, holds an important place as a visual aid for music. Through this camera pitch and time are graphed. The resulting fractioned graphs or "pattern scores" are used to evaluate vocal and instrumental work[7]. In developing procedures whereby recognized artists in music can perfect their work with scientific accuracy, Doctors Seashore and Tiffin point out that "we shall ultimately establish norms of artistic achievement." These benefits for the creation, interpretation, and transmission of music, very naturally, will be accompanied by an increased appreciation for standards of value above the present average.

In the field of visual aids designed for use in the average classroom where music interpretation is taught, important material is now available. This material ranges from convenient methods for explaining, historical, theoretical and technical aspects[8] to sound pictures which are beginning to appear.

In the pictorial group are biographies in lantern slides with lecture manuscripts of some of the greatest composers. One excellent series has been edited by the Staff of the *Musical Courier* of New York[9]. This more common type of service is in keeping with the offerings available for other classroom subjects.

Supporting this material are both slide sets and films more closely identified with the musical compositions. In the "Visu-Aural" system[10], dramatic stories in the form of operatic music are synchronized with films and colored slides for scenes and characters. The duration of the presentation may extend from ten minutes to an hour.

A series of one-reel films on *Famous Music Masters*[11] represents a definite contribution for music appreciation. This series of films consists of incidents from the lives of great musicians accompanied by their own music. These films are issued with full orchestration, especially arranged and synchronized. The following composers are included in the series: Balfe, Beethoven, Bizet, Brahms,

(1) Weber, Joseph J., "Is the Term 'Visual Education' Scientific?", *The Phi Delta Kappan*, II, 78-9, 83 (Oct., 1928). Dorris, Anna V., "Visual Instruction in Public Schools," Ginn, 1928, pp. 6, 15.
(2) Roach, Charles, "Visual Education—What is It?", *The Educational Screen*, 7, 225 (Dec., 1928)
(3) del Castillo, M. G., "The Motion Picture and Music," *Ibid.*, 5, 540 (Nov., 1926)
(4) Briand, William, "The Human Element in Piano Tone Production," *Journal of the Acoustical Society of America*, I, No. 3, 357-367, April, 1930.
(5) Bell Telephone Laboratories, Inc.
(6) *Journal of General Psychology*, 2:135-139, 1929.
(7) Seashore, Carl E., and Tiffin, Joseph, "An Objective Method of Evaluating Musical Performance," *Science*. 72 480-482, Nov. 7, 1930.
(8) Dodd, L. E., "An Apparatus for Visually Demonstrating Musical Scales and the Physical Basis of Harmony," *School Science and Mathematics*, 28, 10-23, January. 1928. Kinsley, Georg, "A History of Music in Pictures," 352 p. New York. 1930, E. P. Dutton, $10.00.
(9) Sims Visual Music Company.
(10) Educational Music Bureau.
(11) Fitzpatrick Pictures, Inc

Chopin, Foster, Gounod, Handel, Hayden-Mozart, Liszt, Mendelsshon, Nevin, Rossini, Schubert, Schuman, Strauss, Wagner, and Verdi.

Still another series of films is the *Famous Melody Series*[12]. Here the folk songs of the various nations are presented in individual reels. Character portrayals in native costume are included to enhance the screen story. These films are so designed that the audience may sing during the projection of the pictures.

Among the talking pictures are the "Music Appreciation" and "Symphony Orchestra" Series[13]. The former aims to promote greater enjoyment through increased understanding, while the latter explains and demonstrates the instruments of the orchestra, by choirs and individuals for junior high school music courses. These films are completed with a unit of instruction for the series.

Gregory's recent study[14] of the entire field of visual aids in England and European countries reveals interesting comparative data. The work in Germany is especially noteworthy.

The sociological principles underlying visual aids, like music itself, are sufficiently sound to transcend national life and the spoken language[15]. A moment of sober reflection discloses the fact that these two agencies, singly and in combination, are basic in the establishment of a universal language of multiform expression. It is interesting to note that the fabric in this case would be, in part at least, made up of a most desirable factor; namely, appreciation. This may be the significance of the British International Film Distributor's Plan[16] in which the organization has engaged Mr. Edmund Meisel, the celebrated Hungarian composer and conductor, to write original musical compositions for the film productions. Mr. Meisel's own distinctive contribution takes the form of synchronized music and sound composed to form a musical interpretation of the actions and emotions of the characters as well as the theme of the story. "Every character in the film," Meisel states, "is given a distinctive motif, music and sound combined to suggest the character of the person portrayed. Noises and miscellaneous sound effects are woven into the musical composition itself, becoming an integral part of the orchestral score."

In Berlin, the central organization for the distribution of visual material is known as the T. W. L. Concerning this institution, Doctor Gregory says that no institution in this country possesses visual material as well adapted to technical instruction. The lantern slide collection includes music and art material in addition to that for geography, history, literature, and science.

What is true of visual aids sociologically is also true of them educationally and psychologically. As such an aid is of direct value in supporting imagery, so also it may serve in the process of thinking[17], in the principles of imitation, in self-expression, and in the student participation.

Interesting applications for the idea of visual aids as a means of encouraging music appreciation are to be found. The prepartion of a scenario such as *Musical Shoes*[18] illustrates the point from a somewhat novel angle and in contrast with such projects as the presentation of operettas and other musical stage productions.

All of these aids, it will be noted, belong in the same class as the flash card for teaching such things as chords, keys, and time elements; and as wall charts to show the various types of scales, key signatures, and transposition for different instruments.

But the story does not end here. When visual aids such as these have been justified economically[19] to the complete satisfaction of the tax payer and patrons, we are at yet another vista. On one hand is television and on the other, the developments of the sound picture. The significance of these two instruments rightly used for the cause of music alone can not be measured.

What a day in the annals of music appreciation to have Walter Damrosch and John Philip Sousa together with their respective Orchestra and Band available to music lovers the world over and for all time through the sound pictures! In yet another day, the worthy successors of such great leadership may be heard and seen by television simultaneously in the classrooms of America. From such an Athenaeum then we may look forward to an unreckoned appreciation for music and to a wealth of masters in the divine art.

(Note—A short bibliography on music appreciation selected for helpfulness to music teachers and students will be found in Beattie, McConathy, and Morgan's, "Music in the Junior High School," New York; Boston: Silver, Burdett and Co., 1930, pages 142-43.)

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(12) Pathe Exchange, Inc.

(13) "A New Force in Modern Education," 16 pp. Department of Educational Talking Pictures, Electrical Research Products.

(14) Gregory, William M., "Visual Education in Europe," *The Educational Screen*, 8, 292-294 (Dec., 1929), 9, 4-5, 14, 39-40, 60, 68-69, 90, 100-102, 122, 132-3, 151 (Jan. to May, 1930, inclusive).

(15) Rogers, James Edward, "Recreation Annexes the Movies," *Movie Makers*, 4, 306-307 (May, 1929).

(16) Forkert, Otto, "Foreign Notes," *The Educational Screen*, 8, 267 (Nov., 1929).

(17) Graves, W. E., "Imagery and Thinking," *The Educational Screen*, 6, 261 (June, 1927).

(18) Hacker, Leonard, "Musical Shoes," *Movie Makers*, 4, 94 (February, 1929). See also the following:
Sargent, Epes W., "Illustrating Songs," *Ibid*, 4, 290, May, 1929.
Richards, Arleh, "Bringing Music to Life," *Ibid*, 4, 449, 474-475 (July, 1929).

(19) Chapman, W. P., "The Economic Aspect of Visual Education by Motion Pictures From a Parent's Viewpoint," *The Educational Screen*, 9, 167-169 (June, 1930).

The Sources and Uses of the Visual Aids in the Teaching of Biology

(Concluded from the September Issue)

HOWARD L. REED

RAISING Paramoecium is as easy as "falling off a log" and should be attempted by every biology teacher. Start a mixed protozoan culture as already directed. The Paramoecia which develop in this culture will be used to inoculate permanent cultures. If time is not available to wait for Paramoecia to appear in this way they may of course be purchased from a biological supply house or obtained from most pond water.

The permanent culture should be started as follows:

Obtain a six inch by eight inch battery jar and fill it with pure distilled water to a depth of five or six inches. Add 30 or 40 grains of boiled wheat. After several days a heavy bacterial scum will develop on the surface of the water. Two days after this scum appears, inoculate by pipetting Paramoecia from a mixed culture. When Paramoecia develop in the mixed culture, they will usually appear first at the surface of the water around the edge of the jar. To be sure these are the large Paramoecia pipette some of them into a watch glass and examine under an ordinary binocular dissecting microscope. If most of the ciliates are the large Paramoecia they can be used to place in the permanent culture. Start new Paramoecium cultures every three weeks if you wish to have them available at all times.

Handling Paramoecium in the Laboratory

These protozoans are not found upon the bottom but are more apt to be found evenly distributed throughout the culture. If the culture is heavy, a drop of water taken from any part will contain plenty of specimens. If the culture is not heavy the paramoecia may be concentrated by wrapping the culture or bottle, leaving only the surface of the water exposed to light. The ciliates will collect on the surface and may be easily obtained therefrom.

One of the greatest difficulties in studying paramoecium is to get them to stay in the field of the microscope. This problem is especially difficult if the compound microscope is being used. If a small amount of sediment from the bottom of the culture is placed upon the slide with the paramoecium, some of the specimens will become entangled and may be observed with ease. Some teachers place a few fibers of cotton (absorbent) on the slide and the paramoecia become entangled in this. Many times when the water has nearly evaporated from the slide the paramoecia will slow down so that they can be studied.

Growing a Culture of Euglena

This form is also very easy to rear. Proceed in the same way as in culturing for Paramoecium except that boiled rice should be used as a source of food material instead of wheat. Place about 60 grains of boiled rice in a gallon battery jar filled to a depth of five or six inches with pure distilled water. Allow this to stand and ferment until it forms a bacterial scum. Several days after this appears inoculate with euglena. Cultures of this protozoan can be kept going for a long time. Euglena cultures should be kept where they will get plenty of light. The material used to inoculate the culture may be obtained from duck ponds where the water becomes very stagnant. Any green film appearing on the surface of stagnant pools is apt to be Euglena.

Handling Euglena in the Laboratory

Euglena is very strongly attracted by light and will collect on the lighter side of the culture or bottle. They do not move as rapidly as paramoecium and can be studied without slowing them down.

In general, for microorganisms the teacher will find that the best thing to do is to go out on a field trip and collect water from ponds, ditches, pools, etc., and any material that looks as if it might be of vegetable origin (usually clinging to rocks or floating free in the water), place it in a screw-cap vial (labeling as to place of collection) and then upon returning to the laboratory examine collected material and identify. Ward and Whipple's "Fresh Water Biology" as a reference will generally enable the teacher to identify the material and after this procedure has been carried out several times the teacher will begin to become acquainted with the available material in his locality and thus know where to obtain what he desires at any future period without the necessity of extensive search.

Before the class demonstration, involving the use of the micro-projector, it is advisable to examine the material and make mounts that will show the living material to best advantage. One difficulty in preparing mounts ahead of time is that the water on the slide evaporates and the organisms die. The following method is generally helpful in preventing this occurrence: Take your micro-slides and with melted paraffin make a square outline in the center of each slide (the size of the cover glass); then place your water containing the microorganisms in the area encircled by the paraffin (which solidifies almost immediately); next warm the cover glass gently over an alcohol lamp

flame and place it evenly over the square outline of paraffin on the slide. This will prevent the loss of water by evaporation and the material will keep for several hours without any harm to the micro-organisms on the micro-slide.

Preservation and Fixation of Material

Many times the teacher collects material at times when it is available so as to be sure to have material ready for class work later on and as it is sometimes difficult to keep the material in a living condition, it becomes advisable to preserve it in suitable solutions without detriment to the material.

A solution which will preserve green algae in good natural color is made as follows:

Potassium chrome alum	10.
40% Formalin	5.
Water	500.

This fixative will not plasmolyze such forms as Vaucheria and most algae fixed in it will be well preserved for microscopic examination or micro-projection.

For general use one of the most useful fixatives is the "F.A.A." solution or "Turtox Universal Fixative." This solution, which will be found dependable is made as follows:

50% Alcohol	100.
40% Formalin	6.5
Glacial Acetic Acid	2.5

This fixative is excellent for most plant tissues and for many of the smaller animal forms. Its usefulness is due also to the fact that many tissues may be left in it indefinitely.

Another useful pickling solution commonly used for algae, etc., is the so-called Biological Solution, which is made as follows:

Alcohol, 95%	10%
Formalin, 40% solution	2%
Glycerine	5%
Water	83%

Many fleshy fungi (mushrooms) may be preserved in their natural color in the following solution:

40% Formalin	6 cc.
50% Alcohol	100 cc.

In some case it may be necessary to use even as much as 50% of the 40% formalin solution and 50% of the 50% alcohol.

A 4% solution of 40% formalin is very useful for preserving many plant organs.

25% alcohol and 5% glycerine in water also is very good for many plant organs.

Staining Plant Material for Microscopic Work and Micro-projection.

In regard to the preparation of stained mounts of sections of plant tissues and organs for microscopic work and micro-projection it is advisable to give some data because most botany teachers wish to discuss the histology of such things as roots, leaves, stems, vascular bundles, etc.

Many sections of plant material may be satisfactorily obtained by means of a sharp razor but a sliding microtome gives best results for general work. The rotary microtome is best for delicate tissues as mushrooms, etc. Embedding in paraffin and celloidin are very valuable but are somewhat complicated and very lengthy processes so I shall refer the teacher to a suitable text in regard to those methods.

The sections obtained may be stained by various methods, many of which will give excellent results in the hands of the experienced technician, however, I shall outline a method which the most inexperienced teacher can use without fear of overstaining (the most common difficulty) or of making other common errors. The results are always the same and the double staining gives good contrast between various types of tissues, i. e., soft cellular tissue as parenchyma will take a red stain and lignified tissue or woody tissue will be stained green.

I worked out this method several years ago because my students were having considerable difficulty in their staining in the process of making a canada balsam permanent mount. They were constantly overstaining by other methods we employed. The method is as follows:

1. Take thin sections and boil in a 10-20% solution of chloral hydrate (for 5 minutes). This removes starch, chlorophyll, resin, etc., i. e., it clears the section so that any of the opaque cell constituents will be removed.

2. Wash the sections in a dish of tap water to remove any chloral remaining in the tissues after the process of clearing.

3. Place the sections in 50% alcohol and to this add 5 or 10 drops of a solution of methyl green dye (0.5% in 50% alcohol). Allow the sections to remain in this solution until the sections are entirely stained green (heating gently will hasten the process).

4. Place the sections in 70% alcohol for 30 seconds (dehydration gradually).

5. Transfer the sections to 95% alcohol for 30 seconds (further dehydration).

6. Transfer to 100% alcohol for 30 seconds (complete dehydration).

7. Transfer sections into clove oil.

8. Add 10-20 drops of safranin or methyl red dye solution (2% in absolute alcohol) to the clove oil. Allow the sections to remain in this solution until the sections show tissues stained red in places against other tissues which are green (hold up to light to note this), or if not certain allow the sections to remain in this solution for several hours (they cannot overstain).

9. Transfer the sections to cedar wood oil.

10. Place section on a micro-slide and with aid of a blotter remove the excess of oil around the section and

add two or three drops of Canada Balsam (Balsam of Fir) and place cover slip on the Balsam.

This is what is known as a permanent mount and it may be kept indefinitely. Any material prepared in this manner is always available for micro-projection and the teacher should prepare sections of various plant organs in this manner until he or she has a collection to be used for this phase of the work each year. These slides can of course be used for ordinary microscopic work in the classroom giving the students more opportunity to study the sections in detail after the micro-projection demonstration has taken place.

If the teacher does not have the time to prepare permanent mounts he may obtain them (excellent matrial of this sort) from the General Biological Supply House.

Undoubtedly there are many things which I have not had time to cover in this article which may be of particular interest to some teachers but any who read this paper and wish for more information concerning any of the things mentioned or other data of biological material can feel free to write or call upon me. I shall be glad to furnish any information that I have concerning this type of work.

Objective Presentation in Educational Procedure

(Concluded from the September Issue)

STELLA E. MYERS

LEARNING is an active procedure, not a passive one at any time. An organism interacts with its environment; learning takes place during this activity. Human beings have more neurones and more connections between them than have animals. The difference between animal and human learning is a quantitative one. When an organism is disturbed by the environment, it reacts along the line of tendencies produced from the original nature of the organism and from its previous experience. If no response is forthcoming, thinking is induced. Animals make innumerable manipulations in response to a stimulus, but they do not "stop and think". An integration of the new experience with the old takes place. This gives both the new and the old experiences a new meaning.

Meumann says that the observed datum is raised to a "greater clearness and to higher degree of awareness." Thorndike and Gates say, "Experiences should be constantly reorganized and reintegrated so that (the child's) wants become increasingly those which, by promoting the welfare of others, rebound to satisfy his own desires." Our methods of reconstructing our experiences form our habits. Each thing to which we attend connects with some other thing. Through association in this manner, we acquire meanings, and only by association. Kilpatrick says that we would lose the world as we know it if we lost meaning. Bode sums up all thinking as a discovering and testing of meanings. He calls meanings the tools of thinking. Much is made by many writers of "insight", which seems to be "meaning" raised to its highest pitch. Experience only affords the opportunity for insight, but does not guarantee it.

To speak more fully of the exact form which the thinking activity takes, Freeman says that if there is careful discrimination between the sensations, clear-cut sensory impressions result. Some hold that mental imagery forms the very structure of thought. Seabury says, "Every voluntary action of the human being is first an image of the mind." . . . Practice and experience in image-making are of use chiefly because they cut mental images of actions and thoughts necessary to carry on a certain physical or mental process." Dimnet says, "All we can say is: That most of our mental operations are inseparable from images, or are produced by images. We do not differ in this form from the dear animals near us. . . . All these images may succeed one another with the rapidity of lightning, and . . the concatenation will be called thought, but in reality it will only be a sequence of images. . . . Our mind is active on a constant succession of more or less connected images. . . ." This author recommends that for thinking we form a background of images. Dewey is making much of the perception of dominant qualities. He says, "The net outcome of prior experiences gives a dominant quality . . . to a perceived existence." It is through dominant qualities that ideas are connected. Thinking depends upon controlled association. Spearman maintains that thinking is discovering relations between correlates, or is discovering a correlate when another correlate and a relation are known. In "Creative Mind" (p. 20), an analysis is made of the ten, and only ten, relations that may exist between ideas.

Dr. Henry S. Pritchett in his twentieth annual report of the president of the "Carnegie Foundation for the Advancement of Teaching," makes a strong point of "effective education through related ideas", which he considers is lacking in our loosely constructed curricula, but which he finds largely developed in the German system of schools. He says there the organized subject-matter is an "ever expanding structure of thought and experience, having its respective parts fused and inter-related to rep-

resent an orderly, coherent, and significant world. This body of knowledge . . . is a living and growing thing in all its parts, and by skillful review and cross relationships is finally presented to the pupil as part of himself with continuous roots reaching far back in his consciousness. It signifies to him, not a lot of discarded beginnings, but a veritable organic achievement with recognizable features into which he has wrought his convictions, his tastes, his insight."

There are many conditions favoring thinking and the learning process, both physical and mental; perhaps two of these might be singled out for mention at this time. Thorndike and Gates claim that intensity or readiness of wants is the chief means of controlling the educational process. Kilpatrick says that the deeper the feeling and the stronger the determination to solve a problem, "the more fully do set and readiness, satisfaction and annoyance" help him, to learn from the situation. Dimnet, whose "Art of Thinking" sold to the extent of 100,000 copies in nine months, makes quite a point of an evocative mood to induce thinking. He says, (pp. 206; 208): "There is in us a stratum more sensitive than the rest, which we know and where we go at will. . . . We know from experience that the response is sure. . . . Our life with its peaks . . . of sentiment, effort, nobility, or increased intelligence, is a veritable mine of evocative moods. . . . No sooner are we conscious of them than the phosphorescence of intuitiveness begins. Poets know it well. . . . Who cannot remember such moments, and who, remembering them, does not realize that he is where his soul is the most active. . . . Such experiences, renewed when we wish, do more than years of conscious effort or laborious study to teach us what thought is and where it is." As to the method of approach to a situation, we may view it as a whole or may take it piecemeal. Dewey claims that we first recognize a dominating quality in a situation as a whole. "It is the first stage in the development of explicit distinctions. All thought in every subject begins with just such an unanalyzed whole. The immediate existence of quality, and of dominant and pervasive quality, is the background, the point of departure, and the regulative principle of all thinking." Sayers says that an insight of the whole governs the part activity.

Intensivity and vividness may be enhanced by emotional tone. Benson says in his "Psychology for Teachers" that there is an emotional glow when one feels himself into the task, which results in closer attention, greater effort, and more rapid progress. "As long as our thoughts 'touch' the emotions, their stores of energy are tapped." "No progress, however, is made in subjects that bore the child." The "emotional glow" seems to be a sublimation of emotion. Some claim that emotion hinders rather than helps thought, which is evidently true if the emotion is crude or violent.

The following table indicates in what respects the use of representation of the objective world accords with the primary facts of learning .

The Application of Visual Methods to the Laws of Learning

Features of Laws of Learning	Features of Visual Methods
1. Clear sensory images.	1. Defined, accurate presentation (Thorndike) Words are powerless for: Shape; size; proportion; position; color.
2. Synthetic before the analytic.	2. Objects are seen as wholes first.
3. Discovering relations is the essence of thinking.	3. Things related are perceived simultaneously, not sequentially as in linguistic presentation.
4. Insight from meanings.	4. Functions and uses are apparent, giving meanings.
5. Original tendencies in the individual are reinforced and developed.	5. Sight is the sense that from infancy is used more than any other; when used without symbolism it is perhaps the most natural way of obtaining sensations. Vicarious motor activity is also an immediate method of perception.
6. Extensive interaction with the environment; integration with past experience.	6. Not only a ready means of interaction with a large environment at hand, but brings the distant near. The past has many elements that are significant in the present environment. These features can be integrated most readily, and with the fullest meaning, if experienced vicariously by means of representation or the drama.
7. Set; readiness.	7. The uniform and quick responses of children to graphic presentation indicate that there is a constant readiness for learning by that means.

GOVERNMENT ACTIVITIES IN THE VISUAL FIELD

CONDUCTED BY MARGARET A. KLEIN

Motion Picture Activities of the U. S. Department of Agriculture

RAYMOND EVANS

THE MOTION picture activities of the United States Department of Agriculture are carried on through a unit of the Extension Service officially known as the Office of Motion Pictures. This office operates in Washington, a small, but complete motion picture laboratory with its corp of photographers, editors, film splicers, etc., and maintains an educational film library of about 250 subjects (a total of 3,000 reels in all) which are distributed throughout the country. They are used primarily by county agricultural agents, to assist them in their extension activities. During the last fiscal year 5,219 copies were shipped to these agents.

The subject matter covered by the films issued by the Department of Agriculture is as varied as the work of the many bureaus of the Department. There is neither time nor space to describe all the films in this article but some idea of the scope and nature of the subject matter may be gained from the following list of films, selected as representative, from some forty releases of the last two years:

Wool-Marketing and Manufacture (3 *reels*) Bureau of Agricultural Economics. Shows the handling of wool from the fleece to the finished fabric. Covers the whole process of manufacture. Of interest to the general public.

Rabbit Raising (2 reels) Bureau of Biological Survey. Breeds of domestic rabbits; rabbitries of various types; possibilities of rabbits for meat and fur.

Routing Rodent Robbers (2 reels) Bureau of Biological Survey. Shows why and how cooperative control of ground squirrels and prairie dogs is conducted.

Agricultural Explorations in Ceylon, Sumatra and Java (2 reels) Bureau of Plant Industry. Acquaints the public with little known fruits and ornamental plants now growing in this country as a result of work of agricultural explorers in Ceylon, Sumatra and Java where scenes were made.

The Realm of the Honeybee (4 reels) Bureau of Entomology. The life history of the honeybee.

Building Truck Trails in the National Forests (1 reel) Forest Service. Shows how the cost of building truck trails in National Forests is lowered by the employment of modern machinery.

An International Study of American Roads (Talking Picture in 6 reels) Bureau of Public Roads. Designed to illustrate the many types of highways in the United States, their use and service to the country. It shows highway construction methods and machinery; types of automobile traffic and the significance of our highway system to town and country. Scored by the United States Marine Band.

Marketing Live Poultry (1 reel) Bureau of Agricultural Economics. Points out the necessity for culling on the farm; contrasts old marketing methods with the modern; shows care of live poultry enroute to market; government inspection of poultry killing and dressing in city slaughter houses.

Pop Goes the Weevil (3 reels) Bureau of Entomology. A story picture showing how the Sweetpotato Weevil may be controlled. Prepared especially for use among the sweetpotato growers.

Two Generations (3 reels) Forest Service. A story picture on the handling and utilization of woodlands. Prepared especially for use in the hardwood section of the South.

While designed primarily for the use of county agricultural agents and home demonstration agents of the State Extension Services, these films, when copies are available, are loaned to any person or agencies prepared to make good use of them. Thus, they are available to schools, churches, granges and scientific organizations, as well as to individuals who may have good occasion for presenting them. The Department makes no charge for these pictures, but the borrower is expected to pay transportation charges from Washington and return.

Since the funds provided for purchasing copies of films for circulation are scarcely more than adequate to satisfy the demand from extension workers and the Department's own field men, it is futile to hope that the Department will be able to satisfy the increasing demand from outside sources. This is true not only as regards 35mm. copies of films, but especially in regard to copies on 16mm. stock. Most of the recent releases of the Department are available on narrow-width film, but the number of copies available in this size is wholly inadequate to satisfy the demand. To meet requests from schools alone would necessitate increasing the number of copies in circulation many-fold. In view of this situation, users who have occasion to make more or less intensive use of Department of Agriculture films frequently find it worthwhile to purchase prints from Department negatives. The government itself cannot sell prints, but the negatives are deposited with a commercial laboratory which furnishes prints to authorized purchasers at a relatively

(*Concluded on page* 270)

DEPARTMENT OF VISUAL INSTRUCTION NOTES

CONDUCTED BY ELLSWORTH C. DENT, SECRETARY

Metropolitan Chicago Department Branch

Following the call of the Organization Committee, a meeting was held in Chicago, Saturday, October 15, at the Allerton Club. The purpose of this meeting was to organize a Chicago Metropolitan Visual Education Association.

The meeting was called to order by Mr. William H. Dudley, of Chicago, a National Delegate.. He explained its purpose, and following directions of the Organization Committee, appointed a nominating committee, to select candidates for President, Vice-President, Secretary-Treasurer, and five members of an Executive Committee.

William J. Hamilton, Superintendent of Schools, Oak Park, Illinois, spoke on the "Intelligent Use of Visual Material." His address was followed by a demonstration of the use of visual aids in teaching Spanish, by Mr. Albert H. Goodrich, a teacher in the Marshall Senior High School, Chicago.

A business meeting followed, and the following officers were elected:

President—H. Ambrose Perrin, Superintendent of Schools, Joliet.

Vice-President—W. C. Petty, County Superintendent of Schools, Lake County, Waukegan.

Secretary-Treasurer—S. Naomi Anderson, Field Supervisor, Visual Instruction, Chicago Public Schools.

Executive Committee: Paul G. Edwards, in charge of Visual Instruction, Chicago Public Schools; William F. Kruse, Bell & Howell Company, Chicago; Charles S. Winslow, Principal, Lincoln School, Chicago; Stella E. Myers, Chicago; J. Ritchie Patterson, in charge of Visual Instruction, Chicago Public Library.

Two meetings of this organization are planned before January 1st, one in November, and one in December.

Colorado Visual Group Has Interesting Meeting

The annual meeting of the Visual Education Section of the Colorado Educational Association was held at the Morey Junior High School in Denver on Thursday and Friday afternoons, November 10 and 11. The meeting on Thursday was combined with the meeting of the Science Section. A detailed schedule of events is given below:

Thursday

1. The Preparation of Student Science Exhibits —Clifford F. L. Mohr, West High School, Denver.

2. A Student's Opinion of Science Exhibits—Albert Milzer, West High School, Denver.

3. "Science converzationes" of Oundle School—Paul L. Essert, Supervisor Secondary Education, D. P. S.

4. Interesting Bits of Colorado History by Visual Education—Anna Louise Johnson, D. P. S.

5. "Cold Light." A Lecture Demonstration—Byron E. Cohn, University of Denver.

Friday

1. "The Preparation of Natural History Displays for School Use"—Robert Niedrach, Colorado Museum of Natural History.

2. New Cellophane Roll Films for Slide Lanterns —Earl C. H. Davies, West Virginia University.

3. The Visual Education Division of the National Education Association—Miss Lelia Trolinger, University of Colorado.

4. Business Meeting. Election of Officers.

5. The New 16mm. Talking Motion Picture Equipment. Demonstration—Wayne M. Akin.

6. Recent Developments in the 35mm. Talking Motion Picture Machines and Films. Demonstration—J. J. Morgan.

In addition to the usual displays of projection equipment and visual instruction materials of various kinds, there were displays and demonstrations by chemistry students of South and West High Schools, Denver. Another attractive exhibit, which depicted early Colorado history, was prepared by students of the Denver Public Schools.

Westchester County Group Organizes

A group of visual instruction workers and teachers of Westchester County, New York, met at Rye on Thursday evening, September 29, for the purpose of laying plans for the year. The final organization meeting was held on Wednesday, October 19.

At the organization meeting, certain definite aims were formulated, as follow:

1. To hold the meetings the third Wednesday of each month at the schools of the various members in charge of the meetings.

2. To send a notice, with a brief summary of the next meeting, to each member.

3. To distribute, bi-monthly, mimeographed material indicating the sources of the best visual aids.

4. To have no dues other than school or individual membership in the Department of Visual Instruction of the N. E. A.

5. To have practical demonstrations of the use

of visual instruction materials, arranged by members of the group.

6. To provide for an open forum at each meeting for the discussion of individual problems and general interchange of information.

7. To encourage visual instruction courses among the teacher training institutions of the State.

Pennsylvania Science and Visual Education Meeting in December

The meetings of the Department of Science and the Visual Education Round Table of the Pennsylvania State Education Association will be held as a joint session on December 29, in the State Museum Auditorium. The program, as given below, should be of interest to all who may find it possible to attend.

1. The Object-Specimen-Model Collection as Developed for use in the schools by the State and City Teachers Colleges.

2. Some Uses of Visual Aids in Teaching the Social Studies—H. H. Shenk, Professor of History, Lebanon Valley College.

3. Visual Education in Relation to the New Courses in Eighth and Ninth Grade Science—John T. Garman, Special Assistant, Division of Visual Education, Philadelphia Public Schools.

4. Demonstration of Micro-projection Apparatus and Other Visual Aids in the Field of Science—George Rommert, Munich, Germany.

5. The Revised Course in Chemistry—David Pugh, Pennsylvania State College.

6. School Journeys in the Field of Science—John A. Hollinger, Director of Science and Visualization, Pittsburgh Public Schools.

7. Business Session.

Notice of New Directory

THE NEW 1932-1933 VISUAL INSTRUCTION DIRECTORY will go to press within a few weeks. If you are a director or teacher of visual instruction, or if you are interested in the latest news and developments in the field of visual instruction your name should appear in this directory.

The point is this—we have many hundreds of names which are to appear in the directory and in all probability your name is included in the lists which we have in this office—**BUT**—in order that you may be spared the annoyance of seeing your name misspelled or incorrectly listed—we are asking you to fill out the following slip and mail it to the Department of Visual Instruction, 1812 Illinois, Lawrence, Kansas. Your cooperation will be appreciated.

Name ..... Date .....

School or Position .....

Residence .....

City ..... State .....

Government Activities

(*Concluded from page 268*)

low contract price, established by competitive bidding. It is the policy of the Department to encourage the purchase of copies of its films by those who make regular and intensive use of them, so that they will not be deprived of their use.

About a year and a half ago the Department began making talking pictures. The progress in this work has been relatively slow, largely because hitherto the cost of portable projectors equipped for sound has been too high to make it possible for the average county agent to consider their purchase. However, the Department has released about a half dozen sound pictures, and now that the cost of portable sound projectors is more nearly within the reach of the county agent, the prospect seems to be good for the development of talking pictures in the agricultural extension field.

In this connection, recent developments in the 16mm. field are of interest and promise. Several manufacturers have been working on the development of 16mm. sound-on-film projectors with such success that good 16mm. sound-on-film pictures are now an accomplished fact. The Department of Agriculture has as yet released no sound pictures in this size, but it will probably do so when suitable projection equipment is made available to those who habitually use Department films. This development will hang in great measure on the trend of business among farmers. Just now, few if any, rural communities have surplus funds to expend on high-class equipment for visual education.

Contributors to this Issue

Louis A. Astell, Formerly Research Associate, Institute of School Experimentation, Teachers College, Columbia University, New York, New York.

Raymond Evans, Chief, Office of Motion Pictures, U. S. Department of Agriculture.

Ruth Gardinor, Teacher, Scarborough School, Scarborough, N. Y.

Alexander M. Harley, Director of Music, Maine Township High School, Des Plaines, Illinois.

H. Paul Janes, Director, Division of Visual Aids, Presbyterian Board of Christian Education, Philadelphia, Pa.

Margaret A. Klein, Director, Children's Bureau, U. S. Department of Labor, Washington, D. C.

Stella E. Myers, Writer and Research-worker, formerly in charge of Visual Instruction in the Public Schools of Forest Park, Ill.

Howard L. Reed, Massachusetts College of Pharmacy, Boston, Mass.

Albert Lindsay Rowland, President of Shippensburg Teachers College, Shippensburg, Pa.

Correction

In the October issue, the entry under Sarah A. Hine was incorrect. It should read

Sarah A. Hine, In charge of Educational Department of the Newark Museum Association, Newark, N. J.

FILM PRODUCTION ACTIVITIES

The aim of this new department is to keep the educational field intimately acquainted with the increasing number of film productions especially suitable for use in the school and church field.

Travel Subjects Released in Sound

No. 1, a one reel sound movie, depicting a transcontinental journey from Chicago to the North Pacific Coast on the North Coast Limited of the Northern Pacific Railway, is now completing its second year of showing at theatres throughout the country. Ray-Bell Films handled this distribution in cooperation with the railway Advertising Department.

During this time it has been shown in approximately 1,000 theatres in 32 states to an audience totaling over 1,500,000 people. So great has been the demand for the reel that at times it was difficult to fill the requests for bookings with 31 prints. The shooting of the scenes and sound recording of this picture actually took place on railroad property and therefore it is a realistic trip aboard a modern transcontinental train. This dramatic story of a transcontinental train—entertaining—educational—elicited praise from several dramatic critics and theatre managers.

It was thought advisable, following the fine reception and favorable comments accorded the first sound release, to have more of such reels available to fill requests being received. Hence the railroad has just completed three new one-reel sound releases, *The Mountain That Was God*, *To The Olympics*, and *Yellowstone on Parade*.

The Mountain That Was God, a beautiful sound reel, many scenes of which are in natural color, is a journey through Rainier National Park to Mount Rainier, the mountain that the Indians worshipped. *To The Olympics*, a thrilling scenic and educational reel, is a journey by forest trails through the Olympic Peninsula, said to be the greatest wilderness area of the United States. In *Yellowstone on Parade*, a trip through Nature's Wonderland, Yellowstone National Park, interesting and dramatic description by off-stage voice and well chosen musical background hold attention as spouting geysers, towering waterfalls, beautiful scenery, and glimpses of wild animal life pass in review. This reel and *The Mountain That Was God* were produced by Ray-Bell Films, Inc.

Probably the best recommendation that could be given these reels is the fact that the Paramount-Publix Theatres Corporation, with their high standards of exhibition requirements, have accepted these three new reels for showing in their houses throughout the country.

A Civics Film

A new film which many Departments of Visual Education have secured for their libraries is the two-reel 16mm subject entitled *Interdependence*, presented by the Moses Kimball Fund for the Promotion of Good Citizenship, and produced by the University Film Foundation in cooperation with the Harvard Graduate School of Education.

The film aims toward the better understanding on the part of the individual of his place in present-day interdependent society and his relations and responsibilities to other individuals. It is a splendid introduction to the dependence of nations upon each other and should be useful in history, geography, civic and science classes.

Health Production

Under the lengthy title, "Search for the Elusive Vitamins A & D", Health Products Corp. have produced an interesting 3 reel, 16mm film on cod liver oil, its value, sources, and manufacture. Genuine glimpses of the Gloucester waterfront and fishing industry, thrilling activities of the fishermen on the high seas in pursuit of the cod, handling and disposal of the catch, comprise Reel One. Then follow scenes in the research laboratory where thousands of white mice are happily and unconsciously serving the human race by demonstrating the varying effects of presence and absence of vitamins in daily food. The factory processes involved in supplying the finished oil to the public in liquid or tablet form conclude the subject. With the obtrusive trademark omitted from the titles, and a few more titles added, the subject would have still greater appeal and educational value. Advertising in "educational films" should be subtle and indirect to be effective and acceptable.

An Experiment in England

The town of Chesterfield, in Derbyshire, England, has made a film "designed to show clearly how its schools prepare the children specifically for the posts they are to fill after school life." After reorganizing its schools and remodelling its system about four years ago, Chesterfield produced *The New Generation* to show what it had done.

The first section shows shots of town life, factories and homes. The second, nursery schools,

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NEWS AND NOTES

CONDUCTED BY JOSEPHINE HOFFMAN

Visual Group in Indiana Active

Indiana has taken a forward step in the organization of a Visual Instruction Section of the State Teachers' Association. This is the second year for the new group, and the membership has been tripled over that of last year.

It is planned to divide the state into a number of sections with a representative from each division. In this way those members who are interested in visual instruction will be kept informed concerning the latest developments in the program. The following material was prepared by the resolution committee, under the chairmanship of George McIntire, for presentation at this month's meeting.

Whereas, the production and use of visual instruction materials has become widespread in Indiana; and *Whereas,* the efforts of a centralized group are necessary for the standardization of the visual instruction program in order that all pupils of the public schools may share the advantages to be derived from the use of visual aids in instruction; Therefore *Be It Resolved*: That the Visual Instruction Group of the Indiana Teachers' Association adopt a working program by means of which the organization may realize the desirable goals indicated in the aims set forth in this report; and *Be It Further Resolved*: That the President of this group is hereby authorized to appoint such committees as he may deem necessary for the attainment of these goals.

Aims

1. To co-operate in every way possible with the combined National Academy of Visual Instruction and the Department of Visual Instruction of the National Education Association of the United States.

2. To make some definite effort toward encouraging schools all over the state to designate some one individual as director or at least someone who will be held responsible for the building up of local school visual libraries and the extension of facilities for the use of the same.

3. To encourage all schools in the building up of local libraries of the principal visual aids, such as motion pictures (for larger cities only), glass slides, film slides, prints, mounted pictures, exhibits, and stereographs.

4. To insist that schools provide convenient filing systems for visual aids in order that any particular print or slide may be secured with no loss of time.

5. To disseminate information concerning the leading experiments which have demonstrated the value of the principal visual aids.

6. To encourage school systems to finance the visual instruction program through the regular school budget.

7. To disseminate information concerning the low per pupil cost for the use of visual aids.

8. To encourage all users of visual aids to co-operate in making the state visual aid library larger and more helpful to all schools of the State.

9. To recommend that a course in Visual Instruction be made a part of the curriculum of prospective teachers in training.

10. To urge that teachers in service make a careful study of the use of visual aids, both through reading and through careful and purposeful experimentation.

Who Is the Most Extensive Commercial User of Motion Pictures?

What company is the largest user of motion pictures for business purposes? The current issue of *Filmo Topics* carries a particularly interesting article tending to show that Caterpillar Tractor Co., which has increased its motion picture sales promotion activities during the depression, is a strong contender for the title.

The article states that "in Caterpillar files, many records give proof to the effectiveness of movie selling. A Michigan dealer's salesman, going from farm to farm with his projector, sold eight tractors last winter in a region where they had never been sold before. A representative sold eight tractors, a grader, and a snow plow to the government of Afghanistan after interesting the officials with motion pictures and then defeating the royal elephants in competitive demonstrations. Another representative showed pictures before the Emperor of Ethiopia, who became interested, requested a demonstration, and ordered three complete Caterpillar road building units.

" '16mm films,' says Mr. Snider of the Caterpillar Company, 'are particularly adaptable to dealers and salesmen, and practically every Caterpillar dealer throughout the world is equipped with one or more 16mm projectors and a complete library of films of various subjects supplied free to them by the Caterpillar Tractor Co.

"Although silent pictures compose the greater part of the firm's film library, a start has been made in the use of sound films in the hands of traveling

school crews who visit dealers' schools during the winter. Prospective purchasers are invited to these schools.

"In explaining the economy of the motion picture sales method, Mr. Snider says, 'Actual demonstrations are often costly and in some localities almost impossible due to lack of proper conditions. For instance, it is difficult to demonstrate snow removal in July, yet the record of sales of snow plows shows that they are usually purchased in July for delivery in the fall. Motion picture films make it possible to show actual snow removal scenes, or any other kind of work gathered from the four corners of the world, briefly, and at little expense.'"

The Education Index Appears in New Form

The first cumulated volume of *The Education Index* has just been published by the H. W. Wilson Company. It contains a complete index to the contents of THE EDUCATIONAL SCREEN for the past three and a half years and to 116 additional leading educational periodicals of the United States, Canada, and countries abroad, by author and subject in one alphabet. The periodicals were chosen by the subscribers themselves, and additional ones are added similarly from time to time.

In addition to the periodicals completely indexed, 19 other magazines are covered selectively, thus rendering the current literature of the educational field readily accessible—to libraries, research departments, and interested individuals.

The *Index* attempts to give adequate representation to all phases of educational publication. It includes periodicals both popular and technical; it indexes magazines of parent instruction and those dealing with the advanced clinic; it traverses the complete range of pedagogy from kindergarten to seminar, with attention to all departments and aspects. In short, it constitutes a complete guide to the best in current professional literature for educational workers in every branch of the field.

The Education Index, which was begun in 1929, follows the school year and is published on the cumulative plan in nine monthly issues, from September through May, with a cloth-bound cumulated volume each June. The first permanent bound cumulation covers the period from January 1929 to June 1932. The H. W. Wilson Company plan to publish permanent volumes every third year, thus reducing the indexing to the fewest alphabets possible.

British Plan Motion Picture University

What is alleged to be the biggest move for establishing the motion picture as a medium for education is announced by Sir James Marchant, who, in collaboration with Sir Oswald Stoll, plans to establish in London a university in which teaching will be done entirely by film. "Such a venture," states a preliminary report, "can be made financially successful."

Sir Giles Gilbert Scott has prepared a design for the university, which will consist of a central hall with lecture halls, or theatres equipped with "talkie" apparatus radiating from it. A Zeiss Planetarium will be installed in the central dome. Films will be prepared recording lectures and demonstrations by experts in the leading branches of knowledge—science, history, travel, and literature; industrial processes, languages, the teaching of handicrafts, and other lines. The university will be open each day and evening at nominal fees.

Schools and colleges will be supplied with lecture films from this central source, and vans equipped as theatres will travel throughout the country giving lectures on such subjects as agriculture and poultry farming. The university will also contain an ordinary motion picture theatre where foreign films will be shown in their original language; Sir James Marchant, who has been prominently associated with educational films in the past, states that last year exhibitions were given in 86 colleges to 14,650 scholars.

Librarian Forecasts Filming of Rare Books

Professor Edward A. Henry, director of libraries of the University of Cincinnati, believes that the reproduction of valuable books and manuscripts on film will solve one of the greatest problems now confronting the country's largest libraries.

"At present, research scholars undertaking certain lines of study have been compelled to travel to the great library centers of America and Europe to consult original sources and precious manuscripts which were not permitted to circulate, but the film reproductions will make the majority of this material available to savants everywhere. Thus rare and inaccessible literature and documents from all sources of the world can be put into general circulation and be on file in the form of filmed books in the larger American research libraries," Professor Henry said in an address before the university faculty recently.

According to Professor Henry, the scholar desiring to use a filmed book will come to the charging desk of the library and ask for a certain manuscript. He will receive a number of small spools, each con-

taining about five feet of film. He also will be given a small projector which can be used at a study table in an ordinary general reading room even in broad daylight, or he may be directed to a special reading room equipped with projectors. The picture will be projected on a screen about one foot square in the center of a table. When a professor desires to use the document on a larger scale, a darkened classroom will be employed. A 1,500-foot film can be stored in two circular tin boxes about two inches square and a foot in diameter, the professor pointed out. The Library of Congress, Yale University library and the Huntington University library in California now are prepared to copy books and manuscripts on film, it is understood.

Berlin University Course on Movies

During the coming winter, lectures on various film problems will be held at the Berlin University. Professor Dr. Eggert will lecture on "The Basic Principles and Applications of Photography" dealing especially with sound and color film. Dr. Heinrich Beck, in his course on "Practical Photography", will also include the film in his work. Several other courses on musical history and, particularly, on authors' and inventors' rights will presumably touch upon film problems insofar as these are connected with the subject involved.

"Good Will to Men"

Christmas! Season of laughter and joy Gifts and good will to all—and the opportunity to combine both by using Christmas Seals For Christmas Seals help prevent, find, and cure tuberculosis all year round. Use them generously on all Christmas packages, gifts, cards and letters, and let your business correspondence proclaim, "Good health to all."

THE NATIONAL, STATE AND LOCAL TUBERCULOSIS ASSOCIATIONS OF THE UNITED STATES

BUY CHRISTMAS SEALS

Bulletin Service Again Available

The National Geographic Society's bulletin service to teachers, the Geographic News Bulletins, was renewed in October. The cream of geographic news is contained in these Bulletins illustrated from The Society's picture files.

To teachers who request the service, the reports are sent each week from The Society's headquarters in Washington, D. C., for thirty weeks of the school year. Five bulletins accompanied with illustrations and maps go out with each issue. Applications for the Geographic News Bulletins should be accompanied with twenty-five cents to cover mailing costs.

Film Production Activities

(*Concluded from page* 271)

infant and junior schools. The last section shows scenes from factories and workshops, in which children who appeared in the earlier sequences are seen at the jobs that have been found for them. So, in twenty minutes, one follows children in arms through their infant schools, right up to the time when they first begin earning their living.

The framework displays the outstanding features of the Chesterfield scheme; the modernization of every school; the fact that the education received by children up to fifteen is such as will fit them for earning a living and helping the life of the town to go on. The film shows that education, on the Chesterfield system, is not something that ends with school.

A Free Loan Film

The Charles High Productions have just completed an interesting one-reel 16mm educational film, showing in detail how the famous "Kerr" glass jars are made.

This film conducts its visitors thru the big factories without discomfort from fumes, terrific heat and flying glass dust that often prevails. It shows great mounds of sand, lime, and soda ash being mixed and fed into mammoth furnaces and what happens to the moulten glass as it flows in never ending streams into the machines that mould sparkling glass jars.

Three Industrials Finished

Three 16mm industrials recorded by RCA Photophone system have been completed. The productions, all three-reelers, are *The Story of Rope,* for Plymouth Cordage Company; *The Story of the Wright Arch Preserver Shoe,* for E. T. Wright Company, both delivered to Worcester Film Corporation; and *The Rambling Reporter,* produced for the A. & P. Tea Company by William J. Ganz Company.

AMONG THE MAGAZINES AND BOOKS

CONDUCTED BY MARION F. LANPHIER

Science Education (October) "Sound Pictures in Elementary Science," by Melvin Brodshaug and John E. Strayer, discusses the special advantages talking pictures offer the teaching of science, citing two studies which are now being made by the University Film Foundation, and Erpi Picture Consultants.

The authors state that the talking picture "imparts information, knowledge, and understanding, but probably the greatest contribution it can make to science education on the elementary level is in developing appreciations, interests, and attitudes." They predict the extension of the course of study to include elements which are now omitted due to the difficulty of teaching them by means of traditional or present methods. In addition to the contributions made to the teaching value of the motion picture by such processes as animation, telescopic, micro, time-lapse and slow motion photography, the addition of sound and speech aids in clarifying concepts, increases the emotional response of the audience, adds an intimate touch not found in the silent film, enables the screen to portray related action continuously without the interruption of titles, and contributes to the illusion of reality.

The rest of the article treats the technical side of equipping the classroom for 16mm sound pictures. It advises the purchaser to be familiar with the characteristics of good equipment of the sound-on-disc type, which it claims to be superior in ease of operation to the sound-on-film. With respect to the technical superiority of the two types, the article says, "sound-on-film method is in general use in the theatre today not because of any technical superiority but because of commercial considerations of ease in shipping film programs quickly from town to town. In the school field this is not a factor . . . There are technical reasons why 16mm sound-on-film cannot yet provide quality of sound equal to good theatrical reproduction."

New York State Education (October) "The Place of Visual Instruction in the Modern School" is the subject to be discussed in a series of articles to appear in this publication. F. Dean McClusky, Director of the Scarborough School, New York, begins the series, treating the question from the viewpoint of the educational psychologist.

He declares that "the place of visual instruction in the modern school is not that of waging war on language but rather that of cooperating with language . . . There should be a correct association in the mind of concrete images (emphasized by visual instruction), with verbal images (emphasized by other instruction)."

Regarding the place of concrete imagery in the instructional process he says:

"Visual materials and aids give the pupil and teacher something concrete to talk about and to elaborate, in terms of language. They are also of value in providing correct concrete images to be associated with word images thus counteracting the dangers of verbalism. The task of the visual educator is to determine: what devices will best assist in making the subject most interesting, which will be the most economical, and which will present material which can be presented in no other way."

International Review of Cinematography (August) "The Motion Picture and the American School" is the title of a highly informative and comprehensive article by W. F. Kruse, educational director of the Bell & Howell Co., appearing in this issue.

Mr. Kruse emphasizes at the outset of his paper the necessity of coordination of the sources of educational film material in America, and then proceeds to a valuable listing and discussion of these sources as they now exist, among them being the visual instruction departments of various municipal school systems, state visual instruction centers, museums, individual school film libraries, federal government departments, commercial producers, libraries of equipment manufacturers, industrial concerns who have made "free" commercial films, distributors of commercial films, etc.

The article then takes up such subjects as the relative contribution of silent and talkie school films, reasons for 16mm acceptance, and the trend of development in equipment.

The writer is especially interesting and illuminative in a discussion of the place of films in the school. He takes the stand that there is unanimous recognition that the place where the film contributes most to the school is in the classroom. He adds: "The bulk of the films now available to schools is made with the requirements of the classroom distinctly in mind. These classroom films bear an increasingly close relationship to the text book and the study outline. More and more the educator is demanding factual film material that will fit his courses, not in a highly edited or pre-digested form,

(*Concluded on page 279*)

THE FILM ESTIMATES

Being the Combined Judgments of a National Committee on Current Theatrical Films

(The Film Estimates, in whole or in part, may be reprinted only by special arrangement with The Educational Screen)

Estimates are given for 3 groups
A—Intelligent Adult
Y—Youth (15-20 years)
C—Child (under 15 years)
Bold faced type means "recommended"

Air Mail (Pat O'Brien, Ralph Bellamy) (Universal) Very interesting story of the life of mail plane pilots, mostly believable and told at high tension. One scene in which a comrade shoots a pilot to save his suffering after a crash is a ghastly falsity. Good comic elements.
A—**Good** Y—Probably good C—Too exciting

All-American, The (Richard Arlen) (Universal) Good wholesome football picture, especially interesting because of real football stars shown in the big game at climax. Plot concerns gridiron star who crashes when success turns his head. Entertaining mixture of drama, romance and comedy.
A—**Very good** Y—**Excellent** C—**Excellent**

Aren't We All? (Gertrude Lawrence) (Paramount) English Society comedy, English cast, produced in England and in heavy British style. Sophisticated, dignified Lonsdale play about husband and wife, each straying a bit from conventional paths. Intelligent, moderate entertainment.
A—Rather good Y—Hardly C—No interest

Big Broadcast, The (Bing Crosby, Stuart Erwin) (Paramount) Hodge-podge with mere thread of plot, featuring Crosby and Erwin as actors, serving to bring on a group of radio "stars" to do their characteristic stuff in screen vaudeville. Bathroom scene cheap attempt at comedy rather than harmful.
A—Mediocre Y—Amusing C—Harmless

Bill of Divorcement (John Barrymore) (RKO) Realistic, forceful portrayal of shell-shocked English veteran, cured of inherited insanity, trying to take his place again in his home. Katharine Hepburn compelling as clear-thinking daughter making ultimate decisions for all concerned. Excellent production.
A—**Excellent** Y—**Mature and good** C—Not for them

Broadway to Cheyenne (Rex Bell) (Monogram) Melodramatic thriller of little merit except lively action, about gangsters who operate first in New York, then in the West. Coincidence heavily overworked, plot none too plausible, and acting ordinary. Merely another pot-boiler.
A—Elementary Y—No C—No

Forbidden Company (John Darrow) (Chesterfield) Wholesome, human, unpretentious, sincerely acted romance of rich boy and poor girl. Son's father opposes, but his mother wins out for his happiness. Moviedom's critics are amazed that "it is so good without a sexy situation in it."
A—**Good** Y—**Very good** C—Fair

Hell's Highway (Richard Dix) (RKO) Grim prison drama showing horrible life—flogging, sweat-box, etc., in a convict labor camp. Meant as expose' of conditions supposed to exist. Action not always clear. Good singing by Negro convicts. Ribald jesting.
A—Hardly Y—No C—By no means

Hot Saturday (Nancy Carroll, Cary Grant) (Paramount) Cheap glorification of the gay life of flaming youth in small town. Virtuous heroine, misunderstood, finally driven by scandal to marry the young rake-hero who had always scorned marriage. Artificial story, many false notes, mediocre acting.
A—Cheap Y—Better not C—No

Kongo (Walter Huston, Lupe Velez) (MGM) Outdoes original stage play in grim atmosphere, grewsome sufferings and gross cruelty. An orgy of depraved human nature at its worst, running riot in African jungle heat. Fine cast used for exceedingly depressing entertainment.
A—Depends on taste Y—Certainly not C—No

Life Begins (Loretta Young, Eric Linden) (First Nat'l) Clinical but strong, well-acted picture laid inside great modern Lying-In hospital. Some good comic relief but some in very bad taste. Poignant, grim, depressing scenes, but generally convincing, human and interesting. Far better than vulgar publicity.
A—Unusual Y—Very doubtful C—Certainly not

Madison Square Garden (Wm. Collier, Sr., Jack Oakie) (Paramount) Fast-moving, cleverly made, well acted, with humor and some human interest. Glorifies prize-fighting and the so-called "sporting public," with terrible English, cheap slang and wisecracks. Crudity, crookedness and bad taste made glamorous.
A—Depends on taste Y—Doubtful C—No

Monte Carlo Madness (Sari Maritza) (UFA-First Division) Mythical kingdom romance, made abroad, with foreign actors trying to talk English. A queen incognito pursues and wins the stolid, hero-captain of her only warship. Scenically fine, well enough acted, but implausible and rather heavy in total effect.
A—Perhaps Y—No C—No

Night After Night (George Raft, Constance Cummings) (Paramount) Elaborate picturization of the speakeasy world in New York, lavish in money, booze and women. A highly improbable romance is supposed to elevate the tough, low-born but ambitious hero-proprietor, and thus redeem the whole. Gay life shows up to good advantage.
A—Hardly Y—By no means C—No

Night Mayor, The (Lee Tracy, Evalyn Knapp) (Columbia) Evident attempt to capitalize the Jimmie Walker situation, with both plot and acting utterly obvious. Happy-go-lucky combination of wine, women, song, and politics, topped off with happy ending for the Jimmie Walker hero. Elementary entertainment.
A—Mediocre Y—No C—No

Once in a Lifetime (Aline McMahon, Jack Oakie) (Universal) Merry farce-comedy about three ham vaudevillians who crash Hollywood and end up in positions of high authority. Hilarious satire on movie people and methods, thoroughly funny throughout even when silly. Some excellent character work, especially by Aline McMahon.
A—**Amusing** Y—**Very amusing** C—Probably good

Parisian Romance, A (Lew Cody, Marion Shilling) (Allied) Light, humorous, sophisticated story of girl who gives up humble but devoted lover for gay Parisian rounder. Luxury and gaiety for a time. Then, he nobly withdraws to permit heroine's marriage and a moral ending. Typical role for Cody.
A—Perhaps Y—No C—No

Payment Deferred (Charles Laughton, Dorothy Peterson) (MGM) Masterful character-role by Laughton, fine supporting cast, in absorbing, grim, realistic study of London bank clerk, who commits sordid poison-murder for much needed money, with dire consequences to him and his devoted little family. Strong, relentless tragedy.
A—**Notable of kind** Y—Unsuitable C—No

Phantom of Crestwood, The (Ricardo Cortez, Karen Morley) (RKO) The radio murder-mystery-serial filmed, involving a double murder and its difficult solution. Mature and sordid situation. Good suspense, good cast, and more plausible story than most of the kind.
A—Fairly good of kind Y—Doubtful C—No

Rain (Joan Crawford, Walter Huston) (U. A.) Famous stage-play now made into pretentious trash for purposes of mere sensation and cheap appeal. Concerned chiefly with flaying "reformers" and glorifying sexiness of heroine. Huston wasted on wooden role. Publicity more lurid than the film.
A—Trash Y—Pernicious C—No

Red Dust (Jean Harlow, Clark Gable) (MGM) Cheap, crude sex stuff in tropic heat of rubber plantation. Hard-boiled, he-man hero scorns marriage but wins his women; first, the pretty, brazen young vulgarian, then the new foreman's charming young wife (Mary Astor) then, "moral ending" with hero "going noble."
A—Mediocre Y—Unwholesome C—No

Six Hours to Live (Warner Baxter) (Fox) Excellent acting by fine cast, headed by Baxter's splendid performance. Strange but well-presented story of man resuscitated for just long enough to complete a great task before dying. Improbable but absorbing.
A—**Very good** Y—**Good** C—Of little interest

Smilin' Through (Norma Shearer, Leslie Howard) (MGM) Famous stage play screened almost perfectly. Great emotional appeal and beauty of sentiment. Shearer's double role beautifully done, Heggie and March notably fine, but Leslie Howard is unforgettable in his dual characters.
A—**Excellent** Y—**Excellent** C—Beyond them

Strange Interlude (Norma Shearer, Clark Gable) (MGM) Serious effort of producer and cast to screen famous drama which was simply too big for them. Impressive for the uncritical, or for those who never saw the original. Mechanized "asides" rather grotesque. Praise-worthy effort but disappointing.
A—Only fair Y—No C—No

Thirteen Women (Myrna Loy, Ricardo Cortez) (RKO) Artificial, harrowing story about whole sorority except one, driven to death and suicide by fiendish classmate through astrology and mental suggestion. Highly sensational, mobidly thrilling, grewsome and unrelieved. Terrible for children.
A—Hardly Y—Very doubtful C—By no means

Trouble in Paradise (Kay Francis, Herbert Marshall) (Paramount) Sophisticated action, suggestive dialogue, lavish setting in Venice and Paris for exploits of attractive crook and two women who love him—his partner and one of his victims. Trite theme. One comedy scene notably fine.
A—Depends on taste Y—Very unwholesome C—No

Washington Merry-Go-Round (Lee Tracy) (Columbia) Finest picture of kind in many moons. Strong, intelligent, thought-provoking fiction exposing crooked politics and invisible government at Washington. Ably written and directed, intensely dramatic and splendidly played by veteran stage actors.
A—**Excellent** Y—**Excellent** C—**Good but beyond them**

Wild Girl (Joan Bennett, Charles Farrell) (Fox) Most colorful and absorbing Western, unusual for lively action, varied characters, real human interest, sane comedy, fine frontier atmosphere and gorgeous setting among the Redwood forests. Excellent cast. Some scenes probably too strong for many children.
A—**Fine of kind** Y—**Very good** C—Doubtful

THE CHURCH FIELD

CONDUCTED BY R. F. H. JOHNSON

Why Use Pictures In Worship?

H. PAUL JANES

THERE are three incidents in the New Testament which will illustrate, not what worship is, but what induces or stimulates it.

On being thrown out of the synagogue for chiding the leaders who ridiculed the "prophet" who had restored his sight, the former blind man was sought out by Jesus who asked him if he believed on the son of God.

"Who is he Lord, that I might believe on him?" was the man's response. (John 9:36)

When Jesus declared that the one who had healed his blindness was the son of God, the man said:

" 'Lord, I believe,' and he worshiped him." (John 9:38)

On the morning of His resurrection, after the others had left the tomb, Mary Magdalene remained to weep. Because she had not found the stone rolled against the door and His dead body within the tomb, so certain was she that His body had been stolen away that when she saw Him standing before her, the image of His full form partially diffused by her tears, she took Him for the gardener and asked Him where they had laid the Lord's body. When Jesus called her by name she immediately recognized Him and uttered but one word, "Rabboni." (John 20:16)

When the doubting disciple had touched the wounds in His side and hands Thomas uttered that noble prayer: "My Lord and my God." (John 20:28)

In each of these incidents worship followed an identification of God in the personal experience of the worshiper.

A Christian experience is not a vague intangible thing. It is a normal experience with a Christian meaning. When a man or a woman comes to appreciate some good or beautiful experience of his own and identifies that experience as coming from or because of God, worship is the natural spontaneous human response.

Since worship is a real phenomenon, those who seek for God in worship should be aided in their efforts to respond to His Holy Spirit's promptings by every means available to those whom He has ordained to lead in public worship.

If this is true, then the leader of worship can see that his responsibility in conducting public worship is to use every means available to help others to identify and to appreciate the good and beautiful in their experiences and their meanings in terms of the Christian Gospel.

In the interest of efficiency and growth, God has endowed man with certain psychological attributes or qualities which should be taken into account by His leaders in worship as He reveals the way to them.

Worship may be more easily induced in a properly lighted room. For centuries it has been known that psychological semi-darkness with the point of interest lighted provides an advantageous atmosphere in which to induce and aid public worship. The knowledge of this fact has been taken into account by the builders of some of the world's greatest churches.

Reactions of persons to what is going on in the room are definitely affected by the atmosphere created with light. Distractions are often amplified or reduced, the attitude of reverence stimulated or thwarted, inhibitions aroused or left dormant, emotions released or suppressed, and the attention held or distracted because of the lighting conditions in a room. Certain fundamental principles are involved in the lighting of any place of public meeting.

In semi-darkness ordinary visual distractions are reduced. It is a well-known fact that in an evenly lighted room an object moving on the peripheral area of the vision pulls at the attention with more force than an object moving on the point of focus of the eye. On the other hand in a softly lighted room the eye is seldom drawn away from the lighted center of interest of worship by trivial distractions. Any minister will recall times when services conducted in fully lighted rooms have been interrupted at a critical point by so simple a distraction as a late arrival. To disregard this psychological principle is to invite the disturbances which must occur as a consequence and the dissipation of the energies of the leaders who must combat them. So familiar have these distractions become that few realize how important they are.

Emotions are more easily released in semi-darkness. Inhibitions suppress the emotions in a fully lighted sanctuary. Seldom is a person subjected to so harsh a lighting of his features, revealing his most intimate feelings, as that to which he subjects himself in the average church. Most people naturally avoid conspicuousness. This is one of the

reasons why the back seats in a church are filled first. Semi-darkness at least partially relieves this situation. Because worship is emotional, when one feels the desire to sing or to pour out his heart in prayer to a sympathizing and understanding God he should not be restrained from full expression.

When the point of interest is lighted in a semi-darkened room it is difficult for a person without conscious effort to keep his eye from being drawn to the lighted object. Just as birds of passage are attracted to a flashing beacon, so the human attention is drawn and held by a properly lighted center of interest.

With visual distractions reduced, reverence heightened, emotions released, and the attention held by an illuminated point of interest, it is reasonable to expect that worship should be more effective, more interesting, and that it should attract larger attendance.

Considering these facts, aside from any values which pictures may bring into this atmosphere, projection in itself is an essential convenience for providing hymn lyrics and written sentiments which the congregation may desire to repeat together.

And if pictures can be used as an artistic medium to emotionalize words in much the same way as music is used, or if pictures are used to recall experiences and to stimulate desirable vicarious experiences which are essential in identifying and appreciating the good and beautiful which comes from God or is God, and to the interpretation and understanding of these experiences, then pictures have an additional value and may be of inestimable aid in the conduct of public worship.

Reversible Film

Most of us take it for granted that everyone understands all, or nearly all, about reversible film —the film that is usually used with 16mm cameras. However, it might be well to reproduce here the following information on reversible film that recently appeared in *Personal Movies* magazine, in case some of our readers are not informed on some of the points discussed:

"Reversible film is so named because the negative obtained after the exposed film is developed is subsequently reversed into a positive—the finished film being the original one that has been exposed in the camera. When the exposed roll of film reaches the laboratory it is developed into a negative. In the latter process all the silver halide particles of the emulsion which have been affected by light are reduced to metallic silver. The remaining emulsion remains unaffected. The film is now subjected to a bleaching bath which dissolves away all the developed silver grains leaving only the unexposed emulsion. It is then cleared of the bleach, resensitized, and exposed to light. After this second exposure the image is developed as a positive. The film is then fixed, washed and dried.

"There are two kinds of reversible film available to the amateur: panchromatic and supersensitive panchromatic. Panchromatic film is more reasonable in cost and serves well for all-around work. It is sensitive to all the colors of the spectrum, having an excess of sensitivity to blue. Its speed is sufficient for most purposes.

"Supersensitive film, as its name suggests, is faster than the type just mentioned. This, however, is not its outstanding advantage as many individuals are wont to think. As most of your filming is accomplished outdoors in daylight, you have no doubt discovered that regular panchromatic film possesses sufficient speed to record the subjects you photograph. The superior advantages of the new supersensitive emulsion lies in its improved color sensitivity which closely approximates that of the eye. As compared to the regular panchromatic film it has a 400 to 500 per cent greater sensitivity to the red, 200 per cent to the green and 75 per cent to the blue. This will enable a more correct rendition of the subjects you film.

"The speed of supersensitive panchromatic film is rated as twice as fast as normal panchromatic film to daylight and three times as fast to tungsten light. The reason for its great speed with the latter type of illumination is due to the abundance of red in the light provided by the tungsten lamp. Therefore its real speed value to the amateur is obtained when using it indoors with mazda light illumination. Ordinary house lamps may be put into play to provide sufficient light to take successful movies.

"Another property of supersensitive film is that it is soft working. This has reference to the contrast between the different tones in the finished film. A hard working emulsion produces contrasty results. There are decided dark and light portions. At times the results it produces appear snappy, at other times they may seem harsh. In a soft working emulsion there is a soft graduation between the different tones of the images. Contrast may, of course, be present, but it is not very decided. Scenes will be reproduced in a more pictorial fashion, and portraits will be rendered more artistically. Normal panchromatic film is in itself not a hard working emulsion, but the supersensitive panchromatic film produces softer results.

"Supersensitive film is of great value when employing very heavy filters such as the A and F filters both of which are red. With normal panchromatic film the A filter would require a 10 to 12

times increase of exposure, and the F filter about a 25 times increase. Filters allow the light of their own color to pass through and retard the other colors of the spectrum. Therefore red filters admit red light. Since supersensitive film possesses about 500 per cent greater sensitivity to red than normal "pan", only half as much increase in exposure would be required."

Pastor Shows Films With Bible Lectures

Rev. William Russell Hamilton, pastor of the First Baptist Church of New Albany, Indiana, states that he "has taken his Filmo Camera over a vast extent of territory, including parts of Europe and Asia." He sent with his letter a copy of his church calendar in which he states that during four weeks that he spoke to audiences in Georgia he addressed between 18,000 and 20,000 people who were enthusiastic about the new light his lectures and movies threw upon the Bible. On four occasions his audiences numbered over 4,000.

Among the Magazines

(*Concluded from page 275*)

but in short lengths of authentic 'documentary' topic material that shows actual pictures of the thing studied in natural motion and in relation to its milieu."

McCall's (October) Here appears the second of the series of articles by Henry James Forman presenting in condensed form further results of the Motion Picture Research Council's years of research under the Payne Experiment Fund. It is entitled "Movie Madness" and rates vastly higher in interest and significance than the previous article reviewed here last month. "Movie Madness" is excellent reading for any thoughtful parent.

The findings here described concern the emotional effects of sensational pictures upon the young and sensitive audience, and discusses both the immediate and future results of such repeated excitation upon the nervous system of the child. The influences here studied are physiological rather than psychological and, as such, are of immense foundational importance in any consideration of the total effect of movies on character and behavior. These findings are the more significant because the tests were conducted with average "thrill" pictures rather than with extreme examples which are frequent in the theatrical output.

The size of the national movie audience is stated as 77,000,000 per week, of which 23,000,000 (or 36%) are minors, and 12,000,000 (17%) are 14 years old or younger. "Very few" of these youngsters go in company with their parents "when opportunity is presented for lessening many of the more harmful effects."

Many specific examples are given of the hysterical outbursts that occur in the theatre, of the retiring rooms provided in many large theatres whither youngsters, excited beyond control, can be hustled off by ushers to be quieted by attendant nurses, of mothers rushing out of theatres with terrified children clinging to them, etc., etc. But more significant than isolated examples is the summarized conclusion quoted from Dr. Frederick Peterson and confirmed by the findings of the research committees, that "scenes of horror, if sufficiently strong, have an effect very similar to shell-shock—such scenes, when repeated often, are sowing seeds in the system for future neuroses and psychoses, nervous disorders that may continue in adult years."

The article gives interesting details on methods and electrical devices used in the research, concrete results from individual investigators of particular topics, and quotes generously from results by outside investigations. An important consideration is the substitution of hours in a movie house, where the child is "a mere receptacle into which emotions are poured," for hours that would be better utilized in the open where action and reaction can operate to make emotional excitation wholesome.

Do You Teach Geography?

IF you teach or direct the teaching of Geography, you will want to investigate The Journal of Geography, an illustrated monthly magazine owned by the National Council of Geography Teachers, and published especially for teachers.

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SCHOOL DEPARTMENT

CONDUCTED BY DR. F. DEAN McCLUSKY

Director, Scarborough School, Scarborough-on-Hudson, N. Y.

Visual Aids in a Modern European History Unit—A Guide Sheet

RUTH GARDINOR

THIS unit was conducted for the purpose of determining to what extent visual aids in teaching are a factor in promoting mastery.

Part I in Modern European History is composed of two units the first of which is considered here. A guide sheet was prepared for every individual student and a time limit set within which each could progress at his own rate of speed.

On the first day of the unit an introductory test was given to determine the students' knowledge of the material. This was followed by a "bird's eye view" of all the unit presented by the instructor. Class periods were devoted to discussions of the listed topics with related exercises to map work, informal debates, drill check ups, floor talks and lantern slide studies. At the close a final unit test was given. The results were more satisfactory than had been anticipated. The visual aids were found to be an important factor in pupil performance.

Part I

The Battle for Democracy

A. Introduction

In the last 17th and 18th centuries, Europe was suffering from a severe case of chronic absolutism. The symptoms were easily detected—a ruler greedy for power controlling the government; a favored few dependent upon the generosity of the monarch; a church existing upon the fat of the land at the price of a starving peasantry; a vast population living from hand to mouth. Europe had been like this for centuries. The disease had been slow and insidious, feeding upon the weakened power of feudal knights. By the time people realized what had happened, there was no escape. Under such a condition one lived and died in the social class of his father. There was no chance for the baker to advance beyond the bakery or the peasant to be more than a peasant. The weavers in the city wove as their guild or society directed; the peasant struggled to get enough food from his miserable garden to supply his family, while unable to protect his plants from the hunting dogs of the nearby noble. Now and then the distant rumble of war was heard as Louis struggled for his "natural boundaries" or Peter for his "window on the Baltic". Occasionally it came nearer, laid waste to the fields, burned the homes and claimed the best of youth and manhood. Protest was futile, utterly useless, and he who so ventured was likely to languish in jail and repent of his folly.

It was a long time before anyone really worried about such things and wondered how they happened. It was still longer before they hit upon a remedy. That, like the disease, came slowly. Men began to be daring and venture out in ships toward new lands; they discovered strange people, new products; came in contact with amazing beliefs and doctrines. Gradually they came to realize that something was wrong back home—a man ought to be allowed to sell twenty yards of cloth a day if he wished, whether or not his guild approved; a merchant who brought gold and wealth into his country ought to be able to say how it shoud be spent. There followed a painful period of Petitions of Rights, Jury trials, charters and protests. Colonies at first content to remain obedient offspring, became fired with youthful independence, threw off the parental yolk and set up their own government. There was a great deal of shouting about the Rights of Man, Liberty and Freedom. People rose blindly and fought for what their leaders directed. They burned bastilles, beheaded kings, stormed palaces and set up a guilliotine for general slaughter. Europe groaned and suffered: the cure seemed worse than the disease. When the smoke of battle cleared, the name "Democracy" was invoked to remedy all the ills man ever had. It was set upon a pedestal, worshipped and idolized. An era passed and a new one opened.

B. Objectives for Part I

1. To build up a conception of European History as a panorama of related events and personalities.
2. To stimulate an international viewpoint through a study of other nations.
3. To arouse a critical attitude and the recognition of the need to collect facts on all sides of the question before drawing conclusions.
4. To lay a basis for an understanding of world affairs today through a study of history in the past.

C. Learning Activities for Part I

1. Reading

The reading will be of three types:

(a) "Skimming" intended to build up a background of impressions as gained from diaries, biographies, novels, etc.

(b) Detailed or factual reading for study exercises.

(c) Analytical reading for the author's ideas for outlining, etc.

Sources available:

Text: Schapiro and Morris: Civilization in Modern Europe.

Reference books: Hayes: Political and Social History of Modern Europe. Cross: A Short History of England. Green: A Short History of the English People. Ashton: Social Life in the Age of Queen Ann. Ogg: Economic Development of Modern Europe. Giles: Old English Chronicles. Davis: Life on a Medieval Baroncy. Parsons: The Stream of History. Belloc: The French Revolution. Mathews: The Eve of the French Revolution. Carlyle: The French Revolution. Becker: Modern Europe. Hassall: The French People. Adams: The Growth of the French Nation.

2. Visualization:

(a) The map work is intended to help the student associate historical events with the places where they occurred and build up a conception of the relation between geographical factors and history.

(1) Desk maps are available for drill work, testing and projects.

(2) Keystone map slides will be used to supplement the class work. These may be projected upon the blackboard and the outline filled in by students. The class will have access to the following Keystone slides:

1. Map of the World. 2. Map of Europe (physical). 3. Map of Europe (political). 4. Map of North America 1689. 5. Map of North America 1763. 6. Map of North America 1783.

(b) Historical slides serve to enrich the reading material, present personalities as human and real, picture famous events as intensely vivid.

(1) The Yale Chronicle Collection provides the following slides:

1. Routes of Early Explorers. 2 Critical Region in French and Indian

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Wars. 3. Louisburg. 4. An English Galleon. 5. Cartoons on American Revolution—(a) Horse "America" Throws Rider; (b) Ghosts of Washington and George III. 6. Printed Warning to Stamp Collectors. 7. Notice of Boycott on British Goods. 8. Harbor of Boston.

(c) Diagrams and charts are valuable in clarifying the trend of historical developments and in visualizing economic conditions. Opportunity will be afforded the class of working out such diagrams through group discussions.

Note: Figures 1, 2, 3 are results of this.

(d) The preparation by students of glass slides showing the charts suggested in (c) will be one phase of the visual work.

Note: Figures 1 and 2 were made on slides by a committee from the class.

3. Written papers at the end of the unit are intended to be a reflection of the student's impressions of the unit as gained from his reading, class discussions, visual work, etc.

UNIT I

The Rise of Democracy

A. Introduction.

At the beginning of the 18th century absolutism was firmly entrenched on the continent of Europe. Under such monarchs as Louis XIV, Peter the Great, Frederick the Great, Maria Theresa, government existed only in the personality and power of the reigning sovereign. In England, however, the old type of control was weakening. The rise of a prosperous ambitious middle class meant the paralleled decline of absolutism. By gaining control of the purse strings this class wedged its way into at least partial control of government machinery. A continuation of this trend is found in the struggle for American Independence across the Atlantic.

B. Time.

The time set for this unit is 5 weeks. If you find it will take less for a satisfactory completion, you are free to devote the remaining days either to further study of this unit or to a different subject. *Budget your time to be spent in outside preparation.*

C. Procedure for Student:

(a) Be prepared to outline the bird's eye view

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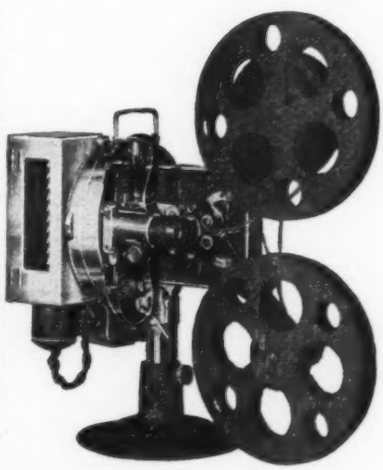

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given by the instructor and to answer questions upon it.

(b) Read the following pages in Schapiro: pp. 175-224.

(c) Start reading in any of the supplementary books on the accompanying list. Organize your reading to cover the following topics for discussion:
1. The characteristics of absolutism. 2. The Age of Louis XIV. 3. Military absolutism under Frederick the Great. 4. Peter's work in Russia. 5. The Balance of Power. 6. Parliament vs. Stuarts. 7. Mercantilism.

(d) You are free to present your report of the reading in any of the following ways:
1. Floor talk. 2. Organized debate. 3 Class discussion conducted by you. 4. Review of one or several books. 5. Library cards containing notes.

(e) Make use of the other aids to help you. Any student or group of students is at liberty to set up the lantern and project maps upon the board or to organize a group project under the supervision of the instructor.
1. Wall maps. 2 Map slides. 3. Diagrams, charts. 4. Debates. 5. Model meetings. 6. Models in miniature.

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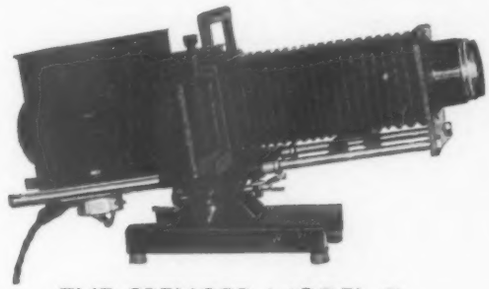

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(f) A notebook is required. It must contain:
1. Notes on discussions, floor talks, debates, etc. 2. Attached notes on supplementary reading. 3. A paper written at the end of the unit reflecting your impressions of the book. 4. Written exercises based on detailed, analytical reading.

(g) Questions:
1. Imagine you are a young middle class merchant under Louis XIV. Prepare a list of 5 grievances you might have against the government.
2. Draw a map showing the acquisitions of territory made by Louis XIV. List in order of importance 5 reasons why these wars were *not* beneficial to France.
3. A prominent writer describing the period 1650-1715 in Europe has called it the "Age of Louis XIV". Read Hayes and list 5 reasons for considering this an appropriate title.
4. Give 6 reforms instituted by Peter the Great in Russia. What 3 of these were likely to be only temporary? Give a reason for your choice of each.
5. On a map show the growth of Prussia from the duchy of Brandenburg in 1415 through the reign of Frederick the Great.
6. What is meant by the "balance of power"? Describe 3 situations when this principle was followed by leading European nations.
7. Define "benevolent despot". List 5 reforms of Joseph II of Austria. Give 3 reasons why these reforms were not likely to succeed permanently.
8. Read in Schapiro on the Puritans of England under James 1 and Charles I. Distinguish between a Puritan and a Separatist. Account for the political influence of the Puritans under Charles I.
9. Beard claims that the economic forces in history are the controlling and dominating factors. What 2 facts in English history under the first two Stuarts are evidence of this?
10. Outline 5 principal steps by which Parliament gained power as a check on the king from 1620-1690.
11. List below the principles of the Bill of Rights.
12. Compare and contrast the Puritan and Glorious Revolutions on the following points:
(a) Leaders. (b) Immediate causes. (c) Achievements.
13. Identify or define the following terms:
Revolution. Stuart. Tudor. Anglican. Puritan. Ulster. Court of Star Chamber. Long Parliament. Cavalier. Roundhead. Protectorate. Lord Protector. Tory. Whig. Habeas Corpus. Cabinet System. Hanoverians. Rump Parliament. Personal Rule of Charles I.
14. The American Revolution has been considered the continuation of that movement in England which attempted to strengthen popular control. State 3 facts

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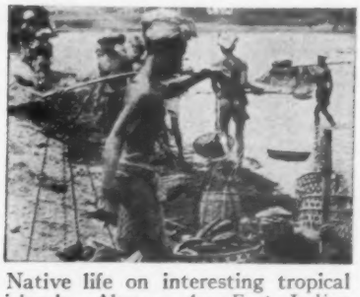

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in American History which substantiate this.

15. On a map of the world locate:
    (a) The nations of the world which you have studied so far this unit as they were in 1763.
    (b) The colonial possessions of England, France, and Spain as they existed after the Treaty of Paris 1763.

(h) Suggested topics for further reading:
1. Social Life in France under Louis XIV. 2. Literary Achievements of the Age of Louis XIV. 3. English Literature under the Stuarts. 4. Drama in the 18th Century. 5. Early Explorers. 6. Life in the American Colonies. 7. Biographies of Personalities in European History.

Introductory Test Given on First Day of Unit I

1. Associate *each* of the following with a country in Europe:
   Louis XIV. Frederick the Great. Bill of Rights. Cromwell. Parliament. Catherine the Great. Charles I. Peter the Great.
2. Describe the kind of society you would expect to find in an absolute monarchy.
3. The process by which England's government became democratic has been termed evolutionary. Explain what this means to you.

Final Unit Test

Answer *4* Questions

1. Identify *10* of the following:
   Doctrine of "natural frontiers". Colbert. Treaty of Paris 1763. Partition of Poland 1772. John Hampden. Personal Rule 1629-1640. "Window on the Baltic". "Liberum veto". Separatists. Protectorate. Pride's Purge. Benevolent despotism.
2. Define "balance of power". On a map of Europe indicate by arrows or some other device, three (3) situations when this principle was followed.
   Note: You may add any explanatory notes in the margins of the map or on reverse side.
3. By diagram or otherwise describe the classes in society that were characteristic of an absolute monarchy.
   List *5* privileges enjoyed by the nobles.
4. The process by which Great Britain gained a democratic government has been termed "evolutionary". Give *5* facts as evidence of this.
   Use diagram if you wish.
5. Answer either (a) *or* (b):
   (a) On a map locate the colonial possessions of England, France and Spain after the Treaty of 1763.
   (b) On a map indicate the steps in the acquisition of territory by the Hohenzollern Family through 1763.

Classroom Use of "The Educational Screen"

A number of classes in visual instruction the past year used THE EDUCATIONAL SCREEN as a textbook in the course, and many are continuing to do so this semester. Among them is Mr. Abraham Krasker's class in Visual Education at Boston University. In studying the magazine, the students were advised to look for these items:

1. To learn the vocabulary used in the subject.
2. To learn the possible use made of teaching aids in their particular teaching subject.
3. To make special note of the methods of use discussed in the magazine.
4. To list the advantages claimed for the use of visual aids.
5. To keep in touch with the progress in the use of teaching aids.

At the close of the term a few students handed in papers in which they listed their findings under the above headings.

STATEMENT OF OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912

Of The Educational Screen and Visual Instruction News, published monthly except July and August, at Morton, Ill., for October 1, 1932

State of Illinois, County of Cook, ss.

Before me, a notary public in and for the State and county aforesaid, personally appeared Nelson L. Greene, who, having been duly sworn according to law, deposes and says that he is the editor of The Educational Screen, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:
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Editor, Nelson L. Greene, 64 E. Lake Street, Chicago, Ill.
Business Manager, Ellsworth C. Dent, 1812 Illinois St., Lawrence, Kansas.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.)
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4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner: and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold and distributed, through the mails or otherwise, to paid subscribers during the six months preceding the date shown above is ——. (This information is required from daily publications only.)

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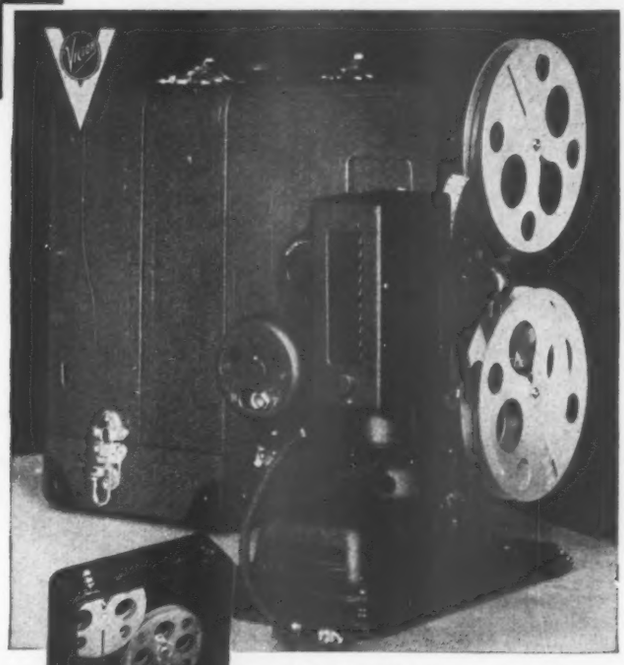

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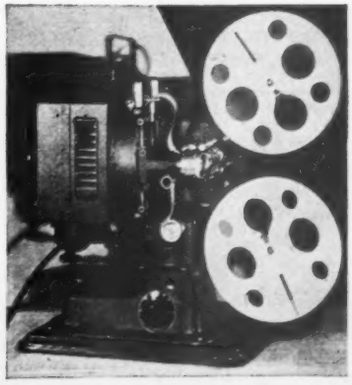

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Eastman Teaching Films, Inc. (1, 4)
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(See advertisement on page 285)

Edited Pictures System, Inc. (1, 4)
130 W. 46th St., New York City

General Electric Company (3, 6)
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(See advertisement on page 281)

United Projector and Films Corp. (1, 4)
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Williams, Brown and Earle, Inc. (3, 6)
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PHOTOGRAPHS and PRINTS

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Keystone View Co.
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REFERENCE NUMBERS

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(2) indicates firm supplies 35 mm. sound.
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(4) indicates firm supplies 16 mm. silent.
(5) indicates firm supplies 16 mm. sound.
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in American History which substantiate this.

15. On a map of the world locate:
    (a) The nations of the world which you have studied so far this unit as they were in 1763.
    (b) The colonial possessions of England, France, and Spain as they existed after the Treaty of Paris 1763.

(h) Suggested topics for further reading:
1. Social Life in France under Louis XIV. 2. Literary Achievements of the Age of Louis XIV. 3. English Literature under the Stuarts. 4. Drama in the 18th Century. 5. Early Explorers. 6. Life in the American Colonies. 7. Biographies of Personalities in European History.

Introductory Test Given on First Day of Unit I

1. Associate *each* of the following with a country in Europe:
   Louis XIV. Frederick the Great. Bill of Rights. Cromwell. Parliament. Catherine the Great. Charles I. Peter the Great.
2. Describe the kind of society you would expect to find in an absolute monarchy.
3. The process by which England's government became democratic has been termed evolutionary. Explain what this means to you.

Final Unit Test

Answer *4* Questions

1. Identify *10* of the following:
   Doctrine of "natural frontiers". Colbert. Treaty of Paris 1763. Partition of Poland 1772. John Hampden. Personal Rule 1629-1640. "Window on the Baltic". "Liberum veto". Separatists. Protectorate. Pride's Purge. Benevolent despotism.
2. Define "balance of power". On a map of Europe indicate by arrows or some other device, three (3) situations when this principle was followed. *Note*: You may add any explanatory notes in the margins of the map or on reverse side.
3. By diagram or otherwise describe the classes in society that were characteristic of an absolute monarchy.
   List *5* privileges enjoyed by the nobles.
4. The process by which Great Britain gained a democratic government has been termed "evolutionary". Give *5* facts as evidence of this.
   Use diagram if you wish.
5. Answer either (a) *or* (b):
   (a) On a map locate the colonial possessions of England, France and Spain after the Treaty of 1763.
   (b) On a map indicate the steps in the acquisition of territory by the Hohenzollern Family through 1763.

Classroom Use of "The Educational Screen"

A number of classes in visual instruction the past year used THE EDUCATIONAL SCREEN as a textbook in the course, and many are continuing to do so this semester. Among them is Mr. Abraham Krasker's class in Visual Education at Boston University. In studying the magazine, the students were advised to look for these items:

1. To learn the vocabulary used in the subject.
2. To learn the possible use made of teaching aids in their particular teaching subject.
3. To make special note of the methods of use discussed in the magazine.
4. To list the advantages claimed for the use of visual aids.
5. To keep in touch with the progress in the use of teaching aids.

At the close of the term a few students handed in papers in which they listed their findings under the above headings.

STATEMENT OF OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912

Of The Educational Screen and Visual Instruction News, published monthly except July and August, at Morton, Ill., for October 1, 1932

State of Illinois, County of Cook, ss.

Before me, a notary public in and for the State and county aforesaid, personally appeared Nelson L. Greene, who, having been duly sworn according to law, deposes and says that he is the editor of The Educational Screen, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:
Publisher, The Educational Screen, Inc., 64 E. Lake Street, Chicago, Ill.
Editor, Nelson L. Greene, 64 E. Lake Street, Chicago, Ill.
Business Manager, Ellsworth C. Dent, 1812 Illinois St., Lawrence, Kansas.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.)
The Educational Screen, Inc., 64 E. Lake Street, Chicago, Ill.
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4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner: and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold and distributed, through the mails or otherwise, to paid subscribers during the six months preceding the date shown above is ——. (This information is required from daily publications only.)

NELSON L. GREENE,
(Signature of editor, publisher, business manager or owner.)

Sworn to and subscribed before me this 20th day of October, 1932.
(SEAL) LYDA SHEA.
(My commission expires December 16, 1935)